Growing Up & Growing Old in the City

Intergenerational living in a residential urban complex.

Reflection Report

Jordy de Rouw

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Intergenerational living in a residential urban complex.

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Advanced Housing Design Graduation Studio
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Preface

This document is a reflection report made for the Advanced Housing Design Graduation Studio running from February 2021 - January 2022. It is a part of the graduation trajectory of the MSc in Architecture at the TU Delft.

The goal of this reflection report is to look back at the graduation trajectory and to reflect on the relationship between research and design.

Interesting to know is that the graduation took place during the covid-19 pandemic in 2021. This means that the first half of the graduation took place from home and mostly through zoom meetings. On the one hand it was very promising to see how quickly we adjusted to these circumstances and how we managed to keep the project going from home. On the other hand things like group work and communication were a bigger challenge as we were not use to working this way. It is nice to see that despite everything the process could still continue and that is possible to do a graduation under these circumstances.

Table of Contents

Reflection Aspect 1

Introduction

This part of the reflection is aimed at answering the question "**What is the relationship between research and design?"** . In order to answer this question I will go trough the different phases and research conducted during the project and reflect on the benefits and shortcomings of each step. If they worked or not and why they worked or not and also explain how I translated the feedback given by my mentors into my work and how I learned from my work.

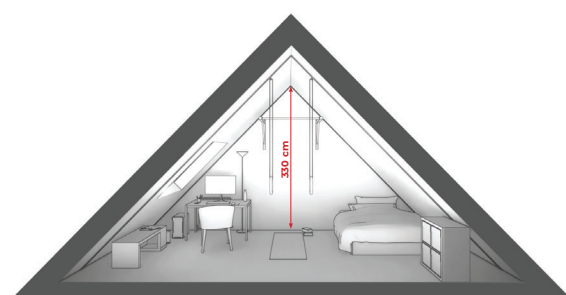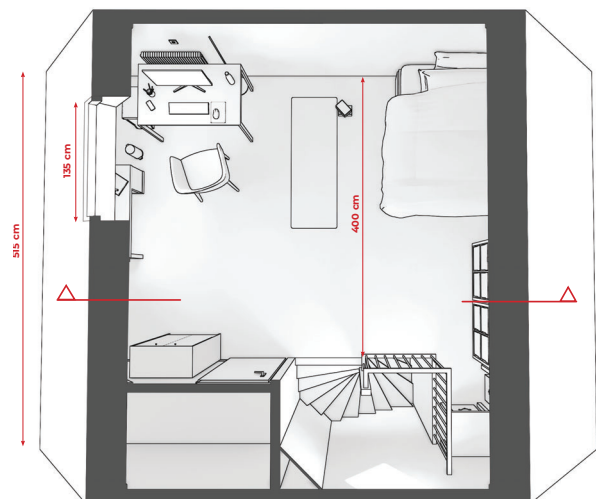## Start up assignment: Auto-ethnographic research

The first type of research that was conducted is auto-ethnographic research. Due to the covid-19 pandemic everyone was studying from home and meetings were held through zoom. As we could not meet the other students or teachers t assignment consisted of drawing a representative image of our workspace to get a better idea of the conditions in which everyone was studying apart from the small glimpse shown through the web-cam.

This assignment had some good and some bad parts as for many students their workspace is also their living space and sometime their bedroom so in essence you are inviting 10 strangers to the privacy of your own home. On the other hand it helped to understand the situation of each of the persons in the group and get to know each-other a little better. In this way created more understanding for each-other.

Another benefit from this exercise is that it was a good first step to start thinking about dwelling. As everybody lives somewhere, grew up somewhere, maybe lived in different places a lot of the ideas of what a good dwelling is comes from personal experience. By critically looking at your own living space you can get

ideas about what a good or bad dwelling is but also realize that we are all biased based on our past. By mixing our own preferences and ideas on living with the preferences of other people and experiences from research we might be able to come to better dwellings. So in that way this exercise was a good start.

Advanced Housing Graduation Studio: **Workspace**

Workspace drawing (own image 2021)

Phase 1 up to P1

Phase 1 spanned the first 10 weeks of the project and consisted mainly on group work. The goal was to find out information about the one million houses question, the current demographics of Rotterdam and Research into the design location. The phase of the research ended with the presentation of our group urban plan and a research plan specifying what type of further research we would do for our projects.

The research in the first few weeks was divided over the group and consisted of 3 parts. Research into the housing shortage, research into the demographics and current households in Rotterdam and research on the site. As we were with 10 students we got split up into two groups of five and each of the groups had to come up with a presentation on each of these subjects.

A big advantage of splitting up the group is that it was a lot more easy to work together. Also by working in groups it was possible to do a lot more research and to look into many different sources. A disadvantage was because both of the groups looked into the same topics that there was a lot of overlap and we had to sit through similar presentations twice. There were however a few different findings so maybe it was still worth it.

Another thing that was that within the groups the work was also divided. Because of this we could get more findings in a shorter time. The disadvantage was that because other student s looked at some of the topics I still had to go through their sources at a later stage and read up to be able to include it in my own research so it was less efficient than it seemed.

News/ Media research

The goal of this research was to look into the one million houses question. By looking at different news and media sources we tried to establish the urgency of the challenge. It was also handy to find out what other issues play in society especially when it comes to housing in The Netherlands. So this part was useful as background to be able to later frame our design proposal and have a relevant project.

News article

bpd
bouwfonds gebiedsontwikkeling

Publicatiedatum: 18 september 2017
Thema: Integrale aanpak

Home > Actueel > Onderzoeken > 1 miljoen woningen nodig tot 2030...

1 miljoen woningen nodig tot 2030

Volgens prognoses van ABF Research worden er in Nederland tot 2030 een miljoen woningen gevraagd. Hoeveel van deze nieuwbouwwoningen kunnen we redelijkerwijs in bestaand gebied bouwen? Hoeveel transformatieruimte is er in de bestaande stad?
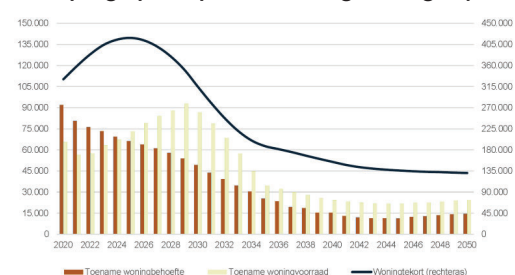
*Source: (bpd, 2017) https://www.bpd.nl/actueel/
onderzoeken/1-miljoen-woningen-nodig-tot-2030/*

Demographics & Household research

The demographics research focussed on the Netherlands and the city of Rotterdam, the goal was to find out the current trends in living but also to look at the past and into the future to figure out what type of houses are needed for what type of people. The most useful information where the many government documents and statistics found online. In many of these documents we found graphs and prognosis of things like population growth, household types and housing shortages. This information we gathered to be able to pin point a user group to build for and also have an idea of the type of housing that are needed.

I think we were pretty successful in gathering this information and there was enough information available to substantiate our user group choices in a later stage of the design.

Example graph: Expected housing shortage by 2050

(ABF research, 2020)

Historical Research

For the historical research we looked at the history of Rotterdam and of our site. By looking into the past we got an idea of how the area developed and how it has become what it is today. Also this research made it possible to identify certain aspects that are that are valuable to the place and that determine the character. These aspects could then be included into our urban plan and the vision for the area.

Location Research & Plan analysis

To get to know more about the location we had a few methods. In one of the first weeks a lecture was organized for us were the alderman of the municipality of Rotterdam that is responsible for the development of the site briefed us with information. There was a part of the history and a part on the current desirable development direction. This lecture served us very well as it gave us a lot of information on the area and also the guidelines from the municipality could be used very well to test our urban proposals and get an idea what would work.

The second way to get to know more about the location was through a location visit. With a group of fellow student I went to the location in the third week. This was a very good experience. By walking around it was much easier to get a sense of scale and the atmosphere of the place and also as we were with a group we could share our observations with each other and notice all the details of the site. I would say a location visit is a very beneficial way of gathering knowledge of a design site and should always be included.

For the third part to get to know the location we made a plan analysis of the site and its surrounding. This was mostly done using maps. This type of research is handy as separating the area into different layers can show the exiting structures more clearly.

8

Historic image

(werf-gusto, 2021)
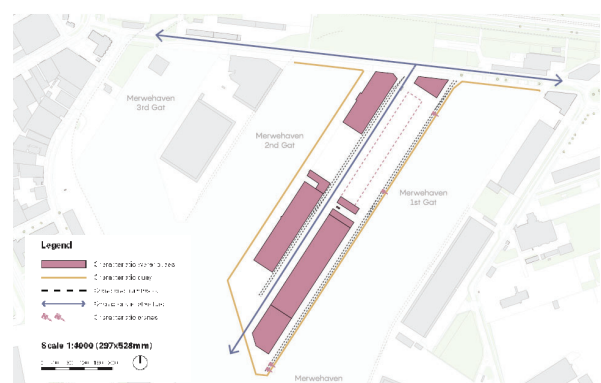
Pictures location

(Own picture, 2021)

(Own picture, 2021)

Image plan analysis

(Urban Masterplan, 2021)

Typology transfer urban plan

To get started with developing the idea for our own urban plan we used a typology transfer strategy. I had not used this method before. In essence what you do is you take an area of city with a certain typology and a comparable scale to your design site and you paste past of this existing city onto the design site.
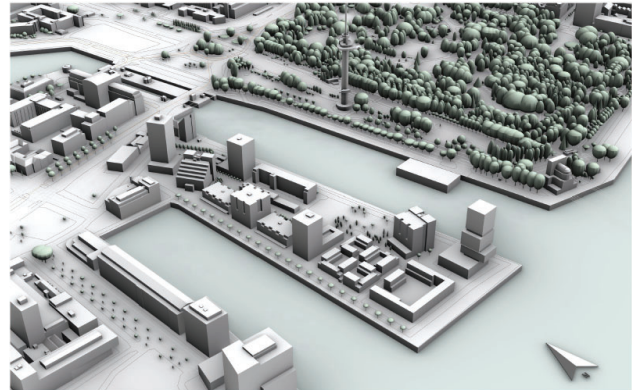
By using multiple area's with multiple different typologies. We could quickly get an idea how our area reacted to different routing possibilities, building densities, building heights. Except from literally pasting one site onto another the follow up strategy is to analyse the given urban area, extract the main principles and try to use this on our design site.

Here again we made use of a site visit and we used a plan analysis to get more information on the site that we were pasting. I together with my team mate had to analyse the Mullerpier which is a similar pier to the Merwehaven and I was surprised how well the transfer worked. As we worked it in smaller groups after finishing this part we already had 4 very distinct urban plans that could potentially be made on our location.

The difficult part after this phase was to combine all these plans into one final urban plan. This took a lot of afford and communication up and down as everybody was trying to get the best aspects of the plan they had made into the final design.
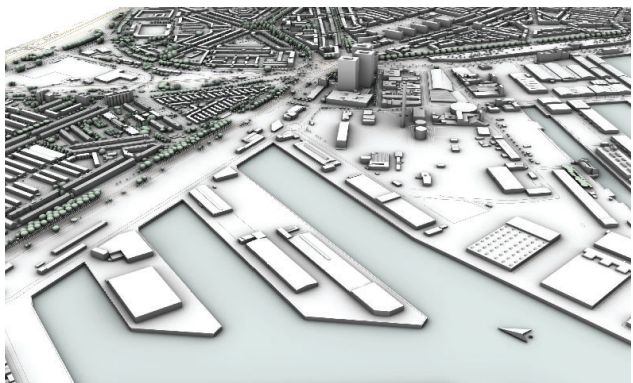
I think this method of typology transfer is a very good way to design an urban plan as it can give you ideas that you would not have thought of initially If you tried to immediately design the plan.
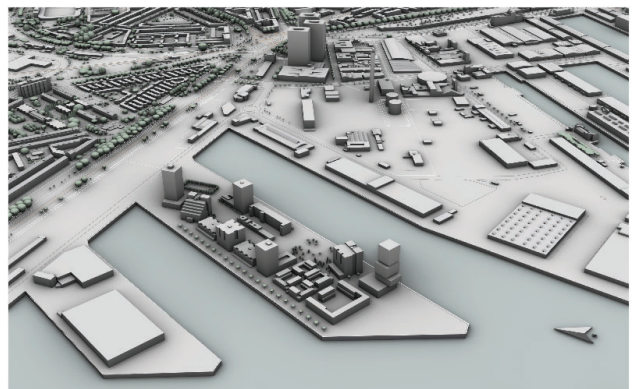
Mullerpier

(Own image, 2021)

Merwepier

(Own image, 2021)

Typology transfer

(Own image, 2021)

Rotterdam neighbourhood research

To gather more data on the city of Rotterdam we also conducted a neighbourhood research. We divided the different districts in the city of Rotterdam between the different members of the graduation studio and the goal was to find out as much information about your area especially when it comes to housing and inhabitants.

I got the area Pernis I looked at the history, the amount of inhabitants, the type of households, age distribution, income, migration background, the housing typologies, rent versus ownership, accessibility, facilities.

Each of the students did the same type of research for their area and in the end it got combined into one big research report on the area's in Rotterdam.

This research was pretty interesting but also quite time consuming as not all the information is easily available and we had to search well to find reliable sources. I think there was initially also a part of interviews planned for this research to talk with inhabitants and get some information in the field. Due to the covid-19 lock down this did not come to fruition. Also during this project the main mentor in charge of this research fell ill so there was a bit of confusion where this research should lead to.

In the end it was interesting to learn about a district in the city but as Pernis is more a village and does not have a direct connection to my design site, the typologies used and the way it is organised could not be very well translated to the design site. I think the idea behind this research was good but maybe we should have stuck with the adjacent neighbourhoods or only have chosen area's that are more similar to the area we wanted to develop our plan into, that would have made the information much more usable.
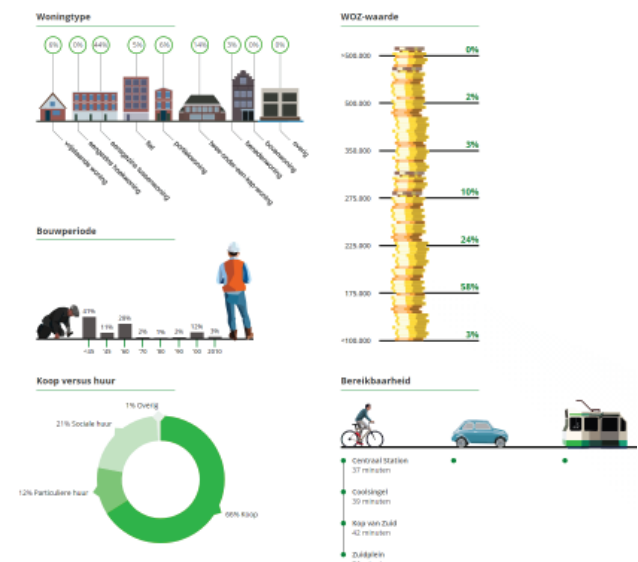
Area's Rotterdam

Pernis

(google maps, 2021)

Niehgborhood information

(Municipality of Rotterdam, 2020)

Urban plan / P1

At the P1 we had to present our final urban design and also show what our plans where for the further development of our graduation project. We needed to have a design plot and a user group.
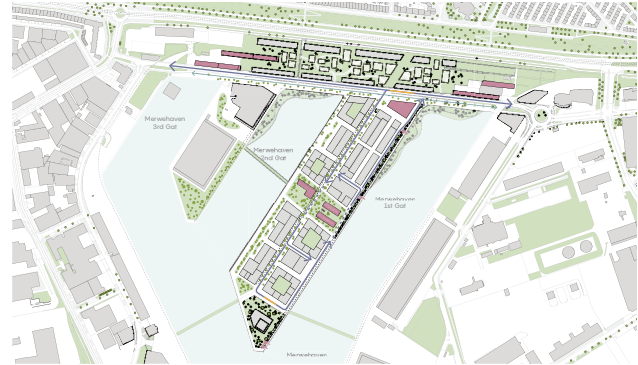
I think for the urban plan we managed to make a good plan with enough versatility and varietion so that every student could choose and plot that is interesting enough to further develop.

I myself choose a plot at the bottom of the peer as I wanted a coutyardblock and I iked the location almost at the head of the peer.

For the user group I choose elderly and families as I was interested in the challenges of both groups. Later in the process this turned out to be quite a challenge as I had to do research into both groups to find out what they needed and I also needed to find a way to cater to both their needs witin the design.

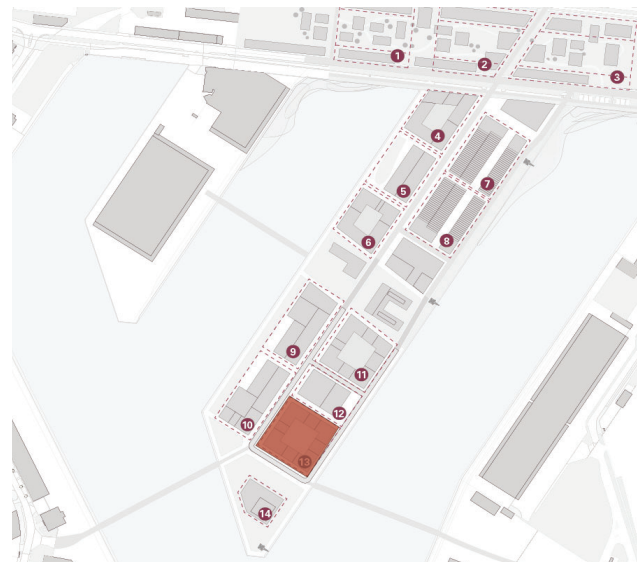The good thing is that I it leads to a much more versatile building as the user group is wider and less focussed.
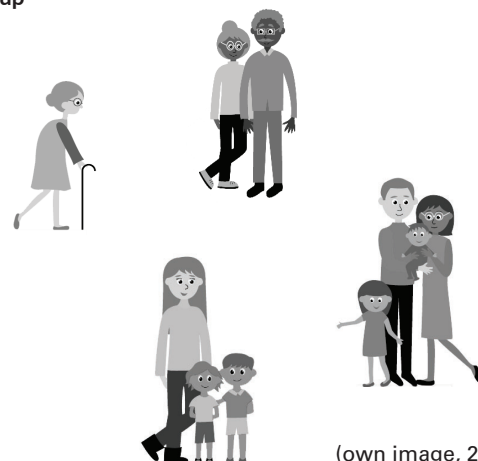
Final urban plan

(Urban Masterplan, 2021)

Chosen Plot

(own image, 2021)

User group

(own image, 2021)

11

Phase 2 up to P2

After the P1 the next steps needed to be taken were the case study analysis, quick start to the concept design an literature research in order to make a research report and have a strong base of knowledge to base my design decisions on.

Case study Research

In order to design a building for my user group I looked at existing buildings made by different architectural firms to gather information and inspiration for my own building. I looked specifically for buildings that were urban blocks of similar size to my plot, they needed to be or for elderly or for families and preferably for both. They also preferably needed to have a courtyard. I managed to find a few buildings that fit my requirements.

It was difficult to find buildings that had a mixed user group of elderly and families so most of them turned out to be either for one group or for the other. This was not a big problem as findings could later be combined. I also tried to contact architects for an interview on the buildings but most of them did not even want to share the plans so I had to work with what was available online in most cases.

The analysis of the buildings gave me a lot of valuable information especially when it comes to dwelling organization, routing in the building and dwelling typologies. I spend a lot of time on the case study research and it was for sure worth it as many of the findings could be implemented into my design. I would therefore say that this form of research is advisable as long as the case study projects are close to the design project.

Case study buildings

Multi-generational Housing

(Schittich, 2007)

Gelaagd Hof

(ANA architects, 2019)

The Family

(ANA architects, 2018)

Eenhoornblokken

(Korth+Tielens, 2019)

Quick start (typology transfer)

The quick start assignment was in essence a typology transfer assignment. During the first week of the second quarter we all had to come up with a potential design for our plot by pasting our different case study buildings onto our chosen plot.
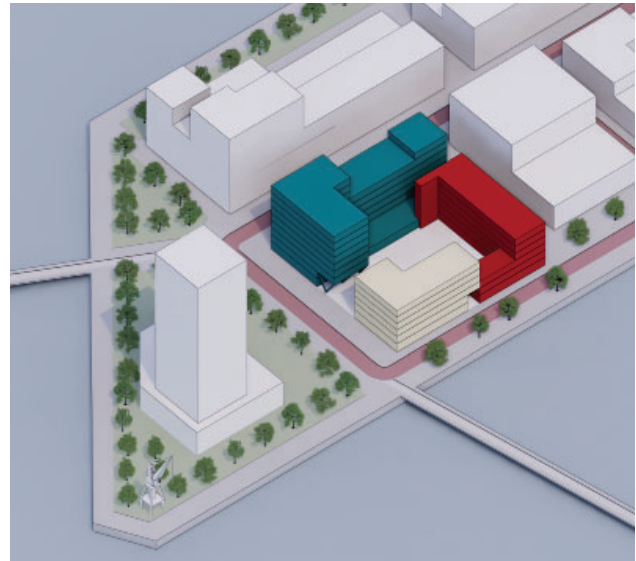
After pasting the different buildings it was the intention to see what works and to gather the strong points of each of the different options.

As a second step it was possible to mix different buildings on the plot in order to get different ensembles in which strong points of different buildings would be combined. On the images an example of this transfer can be seen.

I did not have very high expectations from this approach as we only had a few days to work on it and it was more of a fun game to see what would fit. But at the end of the assignment i actually ended up with a few viable options that could serve as the starting point of my design.

As buildings are usually mate specific to their context it is hard to transfer the findings to your own design but this research approach can help with coming op with a potential building mass and circulations system that can be used in a design. The big advantage of using this method is that you know that the different masses you extract from it are suitable for dwellings as they come from existing buildings.

Quick start 3d view

(Own image, 2021)

Quick start floor plans

(Own image, 2021)

Quick start visual

(Own image, 2021)

13

Literature Research

To get to a good design having good background research is very important. Therefore part of our assignment was to write a research report in which we would ask the most important questions that we needed to answer in order to make our design.

As I had a clear idea of my user group and of the direction I wanted to go with the building it was relatively easy to find literature. I found myself buried in sources in no time and it was a struggle to find enough time to read trough all of it while at the same time working on my design. The goal of the literature research for me was to find out the challenges of my user group and their needs and to translate these to design guidelines to be used in my building.

The most important sources I had when it comes to literature were the research reports made by different architecture firms in which they described the research they had done to accommodate elderly and families in the city. Not only did they describe the challenges but they also had many recommendations how to design for my user groups. Many of my research findings therefore became guidelines for my design. Because the research was done by architecture firms in order to make a building design it was very practical and easy to implement.

Another important part of my research was based around creating encounter and communities. Also here I managed to find sources that linked the creation of encounter to design principles. I think that these type of sources that link research to design are very valuable and also practical to use. They make the literature research a very valuable input in my process as the design will be directly linked to my research.

Reports on elderly family, encounter

STADSVETERANEN ▪▪▪▪

een onderzoek naar verhalen over gelukkig oud worden in de stad

(Heren 5, 2016)

Nestelen in de stad

Appartementen voor gezinnen

(Keesom, 2013)

Ontwerp voor ontmoeten

PLATFORM31

Hoe de gebouwde omgeving kan uitnodigen tot contact

(Platform 31, 2021)

Concept design / P2

During the P2 we had to present our research and show how that research had led us to the concept design. As there was only a little time for the design it had to show the the most important principles. I managed to fail my first P2. I was told that the design I had made did not coincide with the goals I had set myself namly to create a block were elderly and families could live together and interact. While at the same time the closed courtyard made the building really closed and shut down interaction with the surrounding urban context. So my assignment was to look better at how I devided my puclic and collective spaces in the building, how I organize the dwellings for more encounter and how to connect to the urban network.

After the presentation I had to admit that I was dissapointed but I had to agree on the feedback from my mentors and the fact that it did not reflect my design principles very well.

I than had a few weeks to revise the design and in this time I redesignd the urban block opening it up to the city and having the collective spaces much more despersed through the building. This concept design allowed me to pass the P2.

I think that having to come up with the concept in very little time and not having that much feedback made me have a bit of a blind eye towards the shortcommings of my inotial desing. But by listening to the feedback of my tutors I managed to redevise the building and come up with a design that better propagated the values from my research.

Initial design P2

(Own image, 2021)

Design retake P2

(Own image, 2021)

Phase 3 up to P4

During the third phase of the project te focus would shift from research more towards the design. During this phase I also use more research by design as opposed to design by research that was used in the first half of the graduation. As there is also the P3 this could also have been a phase but due to planning the P3 was very close to the P4 so not much changed about the research that is why I see this as one phase.
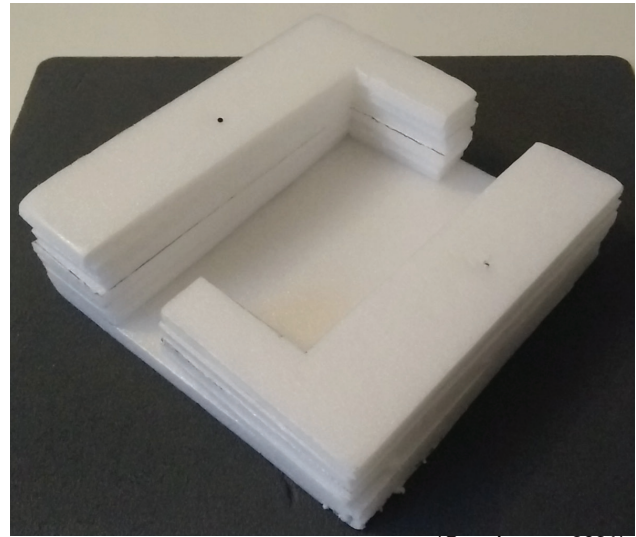
Design Research >P4

Model making

The third phase started with a revision of the P2 concept design. As we were allowed on campus again it was also time to make some models to quickly go through some design options to fine-tune the mass of the building. I started with a model on the scale of 1:500 but it quickly became apparent that the level of detail on this scale was to low. So I decided to make a 1:200 model and with the help of the model I achieved a good building mass. To see how the mass reacts to the context also a digital model was made. I think it is nice to make use of a tangible model during this design phase as you see things differently than on the computer screen. So for this phase of the design the model worked well. I have not made any physical models anymore after this as it was easier for me to test out facade and floor plan variations on the computer in a 3d model as it is quicker to make design iterations one the level of detail goes up.
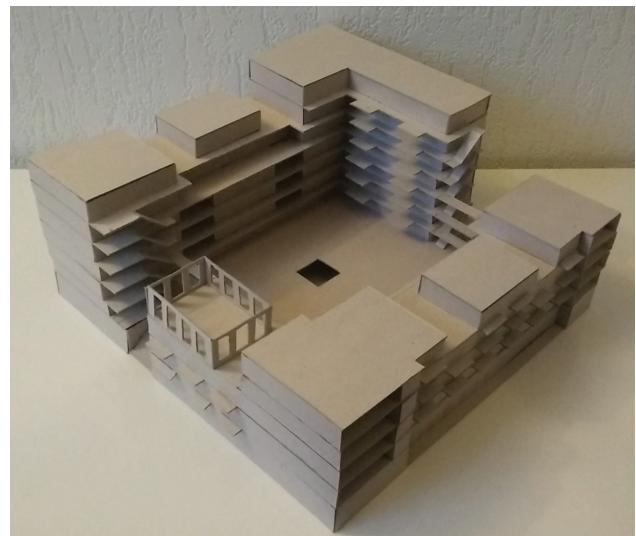
Mass studies

Foam model 1:500

(Own image, 2021)

Cardboard model 1:200

(Own image, 2021)

Digital model in urban context

(Own image, 2021)

Drawing / 3d modelling

Also for the building floor plans but also the dwelling floor plans I used research by design in this phase to continue to evolve them. Even though the floor plans were initially based on floor plans from my case study as the project moved forward they changed and become more and more specific to my own building.

By making floor plan variations and discussing them with my mentors during the meetings I was able to fine-tune the plans a little bit more with every meeting.
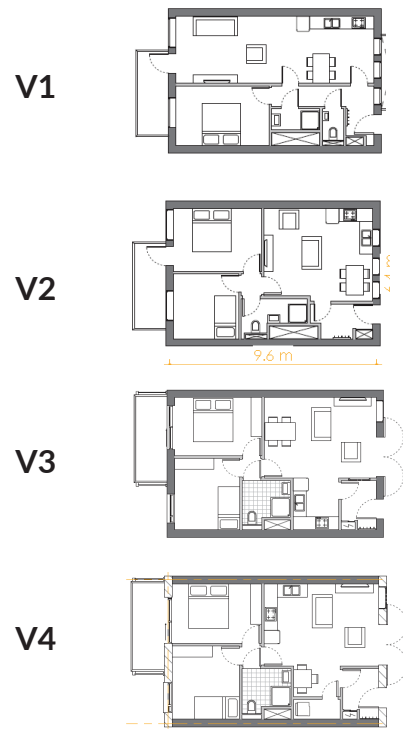
Reference analysis into Research by design

During this face of the project the research for architecture mainly consisted at looking at reference projects and see what elements can be extracted from them and adapted to my own design. This is for instance also the case for my courtyard design.

Feedback from mentors

I think a crucial aspect during this phase was the feedback from my mentors. With their many years of experience they were able to pinpoint the weak and the strong points in the design to help develop it further. I think it is important to have this feedback during this design phase to stay critical at the design.
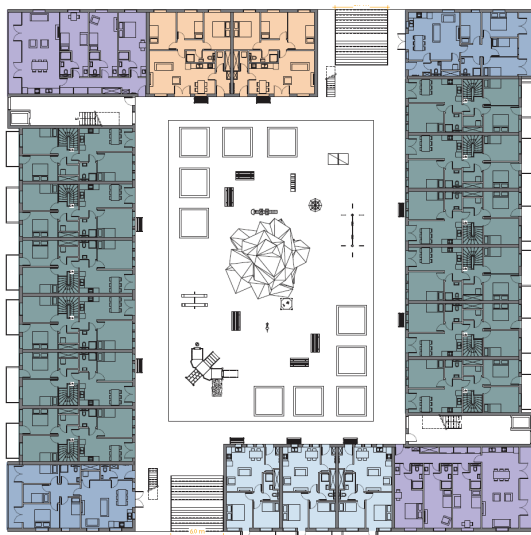
Evolution floorplans

V1

V2

V3

V4

(Own image, 2021)

Courtyard design reference

Courtyard and dwelling typology

(Own image, 2021)

(Own image, 2021)

17

Facade studies

(Own image, 2021)

For the facade also a similar approach was taken , by first looking at reference projects I was able to pin point important qualities that I wanted to use in my of building. Then different variants were made that would be discussed with my mentors eventually leading to a better design.

During the last part of the design the focus switched more toward building technology. This is because as the design moves along more details can be added. The information used during this phase consisted for a large part of knowledge provided by our technology mentor. But also the Dutch building regulation and other technical manuals were used to define the climate system and to draw the construction details. During the putting together of the details I also looked at many different details from existing buildings and manufacturers to figure out would could work and what would not. This combined with a few round of feedback from our mentor helped with the development of these products.

I myself enjoy this part of the process most as when you are using reference studies combined with research by design combined with feedback you can quickly develop the building and also in this phase everything starts to come together.

V1

V2
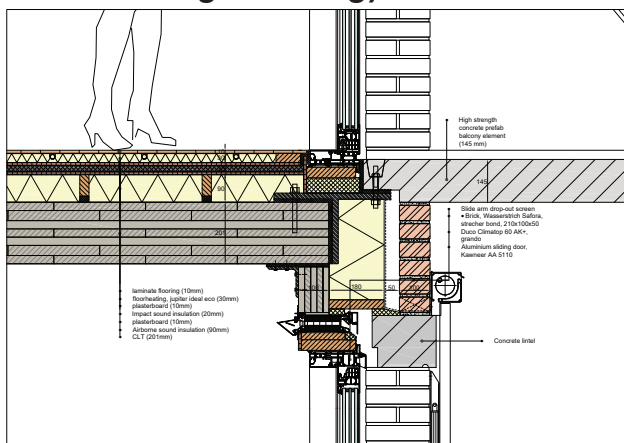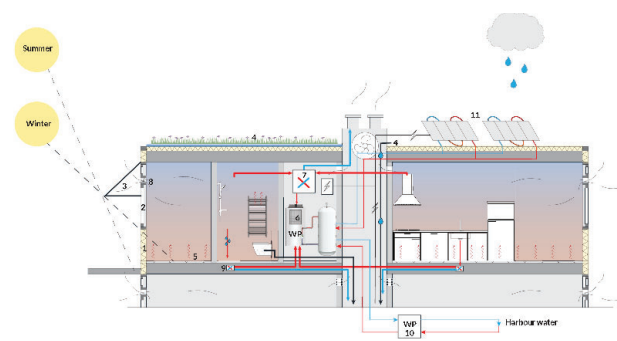

V3

(Own image, 2021)

Detail building technology

(Own image, 2021)

Climate scheme

(Own image, 2021)

Conclusion

When looking back at the graduation trajectory I can say that many different forms of research were used in order to fuel the design. Each piece of research and each research method comes with its own benefits and can give new information for the design.

Looking at the whole trajectory it is clear the in the first part the focus is more on design by research while during the second part of the graduation trajectory the focus switches to research by design.

Because the research is so intertwined with the design process the final design is not only an object of art but can be backed up scientifically by the results of the research. This makes it possible for other people that embark on a similar project to use the research results to make a building with similar qualities as the one that I developed. It also makes it possible to systematically look at the strong and the weak point of the design and to improve upon them over time.

Looking ahead

For now the next goal is to pass the P4, after that there is a little bit of time to incorporate the last feedback I get from my mentors into the design and to finalize the presentation and products that are required for the P5

Reflection Aspect 2-4

Aspect 2: The relationship between your graduation topic, the studio topic, your master track and your master program.

The project is part of the master track architecture and the studio is the Advanced Housing Design Graduation Studio. The topic of the studio is M4H "Designing for modern households, building a city for everyone". The studio aims at answering the question how to provide suitable and affordable housing for a diverse population.

The project location is an old harbor area located in Rotterdam the Merwehavens (M4H). After looking at the current information on acute issues society is facing and the demographic information of Rotterdam I decided to choose elderly citizens and families as my user group. I asked myself the question: How can housing design answer the needs of elderly citizens and families with children and incite a positive rewarding encounter for both groups?

I think this question is an important question at the moment as both these user groups are facing many issues and changes and architecture can help solving some of these issues. The research question eventually resulted in the design of a residential building in which i have tried to cater to the housing needs of the elderly and families as much as possible. So the design solution tries to answer the main question of the studio by being an example of suitable housing for a diverse (different age groups and family compositions) population.

Aspect 3: Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.

The advanced housing graduation studio has a predetermined program and trajectory in which several research methods need to be used in order to advance the project.

Research methods that have been applied are: auto-ethnograpic research looking into my own workspace, Historical research into the history of the location Demographics research into the current situation of Rotterdam using online data. Location research by visiting the site and making a plan analysis. Literature research on how to design for the different user groups and how to stimulate community forming. Case study research by analyzing four existing buildings that are similar to my design assignment and for a similar user group ideas of best practices were gathered. Design research consisting of model making and drawing an making schemes (by hand or on the computer) while getting feedback from the teachers to improve the design.

I think that the combination of all these different research methods combined leads to a very solid base of the project as it is informed by multiple sources of information. By using these different research methods it also gives a good starting point to base all the different design decisions on as they can be traced back to research increasing the relevance of the final result.

Aspect 4: Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.

As stated before the project is based on different forms of research that combined lead to the project results. Part of the research done is specific meaning that the results are specifically aimed at the current project and its context. In this case it would be the historic research and the location research done for the city of Rotterdam.

This research will be harder to reuse as it is only relevant for that location. The research can however serve as an example to research a different location so in this way it can still be usable for other projects.

Then there is a large part of the research that is more general. This includes the case study research and the literature research. The case study research in this case can be interesting to everyone that wants to build urban dwelling blocks. The literature research is even more useful as everyone that is interested to develop a housing project for a similar user group can use it to figure out their current needs and possible solutions to their challenges. Over time though this research might lose some of its relevance as changes in society and politics might lead to different needs and issues arising requiring different solutions.

The final design itself could be used as an example of the applied research and can serve as a case study for a future design. However because it is not build it is not possible to see how well the different design solutions worked and if the goal of community forming is reached.

Aspect 5: Discuss the ethical issues and dilemmas you may have encountered in (i) doing the research, (ii, if applicable) elaborating the design and (iii) potential applications of the results in practice.

During the research it was important to gather as much information as possible about different households, their composition, where they lived, how they lived, how they use their dwelling and the height of their income. This information is very valuable for architects that want to develop new housing projects but at the same time this information is very personal and not everyone is willing to share this. This same information can also be sensitive as it can be used to try to exclude certain groups from specific parts of the city

or certain projects.

The same ethical issue applies during the choosing of a user group. By choosing a certain group to build for other groups are excluded. This can happen consciously but also on a more unconscious level as the dwelling design might be to expensive for certain groups to afford.

Another thing to consider during the design is in what way are we supporting certain political, cultural or social ideas with our design. In case of this design for example dwellings are designed to help elderly citizens to stay at home as long as possible. This growing old at home is something that has been decided partly by politics. Do we as architects support these ideas by building buildings in accordance to them? The same can be said for family dwellings in the city. By building for families were both parents work do we give our approval that two people who are chasing a career in the city have enough time to raise children?

Of course the truth lies somewhere in the middle but it is important to realize that architecture can support or discourage certain lifestyles and it also has the power to include or exclude certain groups, so staying critical also towards political and societal ideas is important.

As for the results of the project, a big goal of the design is to promote community forming. Many architectural tools have been used to try to stimulate community forming but in the end architecture can only do so much. The willingness of people to live together and to engage in the community is ultimately what it comes down to. So the success of a project like this is never certain and it would be nice to follow more similar projects to see what other factors influence community forming and to try to figure out how to improve the success rate.